

WHAT IS CLAIMED IS:

1. A system comprising:  
a network;  
5 a plurality of computing nodes coupled via the network;  
wherein the plurality of nodes includes a first node operable to:  
maintain first information regarding a replica of a data object;  
receive a message for updating the replica of the data object; and  
respond to the message for updating the replica of the data object  
10 based on the first information.
2. The system of claim 1,  
wherein the first node is operable to perform a plurality of operations in  
response to messages for updating the replica of the data object;  
15 wherein said responding to the message for updating the replica of the data  
object based on the first information comprises:  
selecting one or more operations to perform from the plurality of operations  
based the first information; and  
performing the one or more selected operations.  
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3. The system of claim 1,  
wherein the first information comprises information indicative of accesses to  
the replica of the data object.
- 25 4. The system of claim 3,  
wherein the first node is operable to examine the first information to determine  
a number of accesses to the replica of the data object within a first time period;  
wherein said responding to the message for updating the replica of the data  
object based on the first information comprises invalidating the replica of the data object  
30 if the number of accesses within the first time period is below a first value.

5. The system of claim 4,  
wherein said invalidating the replica of the data object comprises storing  
information indicating that the replica of the data object is stale.

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6. The system of claim 4,  
wherein the replica of the data object includes a plurality of portions of data;  
wherein the message for updating the replica of the data object comprises a  
message for updating a first portion of the replica of the data object;

10 wherein said invalidating the replica of the data object comprises invalidating  
the first portion of the replica of the data object.

7. The system of claim 6,  
wherein said determining the number of accesses to the replica of the data  
15 object within the first time period comprises determining a number of accesses to the first  
portion of the replica of the data object within the first time period.

8. The system of claim 6,  
wherein the first node is operable to maintain information for each of the  
20 portions of the replica of the data object, wherein the information for each portion  
comprises information indicative of accesses to the portion.

9. The system of claim 4,  
wherein said responding to the message for updating the replica of the data  
25 object based on the first information comprises performing an update to the replica of the  
data object if the number of accesses within the first time period is greater than or equal  
to the first value.

10. The system of claim 9, wherein said performing the update to the  
30 replica of the data object comprises:

the first node communicating with a second node to obtain updated data for the replica of the data object; and

the first node updating the replica of the data object based on the updated data.

5           11.       The system of claim 1, wherein said responding to the message for updating the replica of the data object based on the first information comprises:

applying a first heuristic utilizing the first information to determine one or more operations to perform in response to the message for updating the replica of the data object; and

10           performing the one or more operations.

12.       The system of claim 11,

wherein the first information comprises information indicative of access activity for the replica of the data object;

15           wherein the first heuristic is applied to determine one or more operations to perform based on the access activity for the replica of the data object.

13.       The system of claim 1, wherein said responding to the message for updating the replica of the data object based on the first information comprises:

20           applying a first algorithm utilizing the first information to determine one or more operations to perform in response to the message for updating the replica of the data object; and

performing the one or more operations.

25           14.       The system of claim 1,

wherein the replica of the data object comprises a replica of a file.

15.       A system comprising:

30           a network;

a plurality of computing nodes coupled via the network;  
wherein the plurality of nodes includes a first node operable to:  
perform a plurality of operations in response to messages for  
updating the replica of the data object;  
5 receive a first message for updating the replica of the data object;  
select one or more operations to perform from the plurality of  
operations in response to said receiving the first message; and  
perform the one or more selected operations.

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16. A system comprising:  
a network;  
a plurality of computing nodes coupled via the network;  
wherein the plurality of nodes includes a first node operable to:  
15 maintain first information indicative of accesses to a replica of a data  
object;  
receive a message for updating the replica of the data object; and  
respond to the message for updating the replica of the data object  
based on the first information.

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17. A carrier medium comprising program instructions executable to  
implement the method of:  
maintaining first information regarding a replica of a data object;  
25 receiving a message for updating the replica of the data object; and  
responding to the message for updating the replica of the data object based on  
the first information.

18. The carrier medium of claim 17, wherein said responding to the message for updating the replica of the data object based on the first information comprises:

5 selecting one or more operations to perform from a plurality of operations based the first information; and performing the one or more selected operations.

19. The carrier medium of claim 17, wherein the first information comprises information indicative of accesses to the replica of the data object.

20. The carrier medium of claim 19, wherein the method implemented by the program instructions further comprises examining the first information to determine a number of accesses to the replica of the data object within a first time period;

wherein said responding to the message for updating the replica of the data object based on the first information comprises invalidating the replica of the data object if the number of accesses within the first time period is below a first value.

21. The carrier medium of claim 20, wherein said invalidating the replica of the data object comprises storing information indicating that the replica of the data object is stale.

22. The carrier medium of claim 20, wherein the replica of the data object includes a plurality of portions of data; wherein the message for updating the replica of the data object comprises a message for updating a first portion of the replica of the data object;

wherein said invalidating the replica of the data object comprises invalidating the first portion of the replica of the data object.

23. The carrier medium of claim 22,  
wherein said determining the number of accesses to the replica of the data  
object within the first time period comprises determining a number of accesses to the first  
portion of the replica of the data object within the first time period.

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24. The carrier medium of claim 22,  
wherein the method implemented by the program instructions further  
comprises maintaining information for each of the portions of the replica of the data  
object, wherein the information for each portion comprises information indicative of  
10 accesses to the portion.

25. The carrier medium of claim 20,  
wherein said responding to the message for updating the replica of the data  
object based on the first information comprises performing an update to the replica of the  
15 data object if the number of accesses within the first time period is greater than or equal  
to the first value.

26. The carrier medium of claim 25, wherein said performing the update  
to the replica of the data object comprises:  
20 communicating with a node to obtain updated data for the replica of the data  
object; and  
updating the replica of the data object based on the updated data.

27. The carrier medium of claim 17, wherein said responding to the  
25 message for updating the replica of the data object based on the first information  
comprises:

applying a first heuristic utilizing the first information to determine one or  
more operations to perform in response to the message for updating the replica of the data  
object; and  
30 performing the one or more operations.

28. The carrier medium of claim 27,  
wherein the first information comprises information indicative of access  
activity for the replica of the data object;

5 wherein the first heuristic is applied to determine one or more operations to  
perform based on the access activity for the replica of the data object.

29. The carrier medium of claim 17, wherein said responding to the  
message for updating the replica of the data object based on the first information  
10 comprises:

applying a first algorithm utilizing the first information to determine one or  
more operations to perform in response to the message for updating the replica of the data  
object; and

15 performing the one or more operations.

30. The carrier medium of claim 17,  
wherein the replica of the data object comprises a replica of a file.

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